

**DR flat panel upgrade kit** for existing X-ray systems for operation without cassettes



# Upgrading to digital made easy



IMedici DR Systems Vet Iwith dicomPACS © YKR Software IDR Retrofit Systems for the Future

> You know the problem: Your X-ray system is not even that old and works perfectly. Yet as a progressive veterinary surgeon you would now like to create your X-ray images digitally and benefit from all the advantages of this technology.

CR systems are not an option for you since digitalisation with a flat panel (DR system) offers many additional advantages, mainly better image quality and hardly any servicing costs. Therefore you would like to extend your existing X-ray system by a flat panel system and are looking for a complete upgrade kit that is easy to install, easy to operate and provides X-ray images in a professional and reproducible quality.

#### Welcome to our Medici systems!

**Medici** systems are available for almost any existing X-ray system. Various makes and sizes of flat panels allow your system to be configured according to your needs. The *dicomPACS*<sup>®</sup>*DX-R* acquisition software can be operated intuitively via a touchscreen, adjusts to your work routine and provides X-ray images in a reproducible, extremely high quality.

Of course, all **Medici** systems can be integrated into your practice management software and transfer the X-ray images to an image management system (PACS). If you have not yet installed such an image management system but still require the images to be distributed within your practice or hospital, or to colleagues or animal holders via the internet – no problem: Our **dicom**PACS<sup>®</sup>**vet** image processing system will do just that.

# How does

a Medici DR upgrade kit work?





1.

# Scope of delivery

of a **Medici** upgrade kit

#### Flat panel (as fixed installation or mobile version)

Depending on requirements and your practice setup, flat panels of various manufacturers, sizes and image resolutions may be used: 30 x 40 cm [12 x16 inch], 36 x 43 cm [14 x 17 inch], 43 x 43 cm [17 x 17 inch]

You may choose among the following flat panels (examples):



### 2.

**Operating console with touchscreen and** *dicomPACS*<sup>®</sup>*DX-R* X-ray acquisition software:

- PC with touchscreen and wall bracket, if required
- dicomPACS<sup>®</sup>DX-R acquisition software including
  - operating software
  - X-ray positioning guide for dogs, cats and horses
  - professional *dicomPACS*<sup>®</sup>DX-R image processing
  - image evaluation software incl. HD measuring etc.
  - creation of patient CDs
  - DICOM store transfer of images to image management systems (PACS)









# Software

Benefits of the professional **dicom**PACS<sup>®</sup>**DX-R** X-ray acquisition software

- Modern graphical user interface (GUI) adaptable to almost any language
- Touchscreen operation to ensure quick and efficient work and a smooth workflow
- Capture of patient data via DICOM Worklist, BDT/GDT, HL7 or other protocols - data may also be captured manually
- Use of **DICOM Procedure Codes** for the transfer of all relevant examination data directly from the connected patient management system (HIS/RIS)
- Freely configurable body parts with more than 200 projections and numerous possible adjustments in veterinary medicine already included
- Safe and fast registration of emergency patients
- Allows the user to switch between examinations of a patient, for instance to avoid having to re-position the patient frequently
- Allows the user to subsequently add images to an examination, even after that examination has already been completed
- Special tools for veterinary medicine, such as an extra dialog box for patient and owner data, integrated hip dysplasia measuring, special image filters, TPLO, TTP, Buchanan's Vertebral Heart Score, distraction index, multi generator operation for alternating between mobile and stationary systems and much more...
- Entry of recurring examination procedures as macros,
  e.g. pre-purchase examination for horses
- Fully integrated radiographic positioning guide for each examination in veterinary medicine incl. comprehensive notes, photos and correct X-ray images
- Facilitates the use of a flat panel and an RVG intraoral sensor

## Software Benefits of flexible image acquisition

- Integration of various flat panels, tooth sensors and CR systems by different manufacturers
- Option to connect up to 3 flat panels (bucky, wall stand and mobile) to one system
- The configurable generator interface enables the user to control X-ray generators or X-ray systems by different manufacturers, delivering the generator settings directly from the software
- Option for the parallel operation of a flat panel and a CR system included in the standard package. The user has the choice to take the next image with either the flat panel or the integrated CR system. This flexibility also provides an excellent emergency concept in case of a defect flat panel.



- Integration of dose area product meters (DAP) the readings are saved directly to the relevant image
- AEC (Automatic Exposure Control) and ARP (Anatomical Programmed Radiography) allow the user to automatically adjust all X-ray options for each projection with an option to subsequently edit the image manually
- Electronic X-ray log





## Operation of the acquisition software



- user friendly graphic interface
- intuitive operation by touchscreen



# Operation of the acquisition software



## Useful tools

![](_page_11_Picture_1.jpeg)

# Image processing for optimal quality

- Perfect images at all times generally **no adjustment** required
- Integrated software for automatic image optimisation
- Professional, adaptable image processing for each individual examination to obtain best possible image settings for the needs of each customer
- Due to specially developed processes, the image processing allows the user to vary the X-ray settings on a large scale while the image quality remains virtually the same (possibility of reducing the dosage)
- Bones and soft tissue in one image this enables the user to significantly improve his diagnosis
- Details of bones and microstructures are very easy to recognise
- Noise suppression
- Black mask (automatic shutters)
- Automatic **removal of grid lines** when using fixed grids

![](_page_12_Picture_10.jpeg)

Exposure with **standard** image processing

![](_page_12_Picture_12.jpeg)

Exposure with dicomPACS<sup>®</sup>DX-R image processing

## Image diagnostic at the highest stage

 Completely integrated *dicomPACS*<sup>®</sup> Viewer for image diagnosis, further processing and storage of images in an SQL database incl. image manipulations, export options, layout adjustments, freely configurable user interface and much more

![](_page_13_Picture_2.jpeg)

- Stepless zoom, PAN, magnifyer, ROI, crop, rotate, mirror etc.
- Insertion of image annotations, e.g. free texts, arrows, ellipses etc.
- Measuring of distances, angles, areas and density
- Adjustment of window/level options and gamma correction, sharpening filters, noise suppression
- Provides many additional tools: TPLO, TTA, Buchanan's Vertebral Heart Score, distraction index, Cobb's angle, HD measurements, pelvic obliquity measurements, integrated capturing of diagnostic reports etc.
- Printing of images both on Windows printers and laser imagers
- Creation of DICOM patient CDs with free WEB viewer
- Export of images to JPEG, TIFF, BMP and DICOM formats
- Easily upgradable to the professional, integrated image management system (PACS)

![](_page_13_Picture_12.jpeg)

![](_page_13_Picture_13.jpeg)

![](_page_14_Picture_0.jpeg)

# Image distribution

over the internet web server (optional)

- Worldwide image distribution to colleagues or patients via the *dicomPACS*<sup>®</sup> Web Server (optional) - Images can be accessed from any PC with internet access
- Option of **direct auto routing** of images to external radiologists
- On request, images can be archived externally via the web server
- Images can be sent to image management systems or several databases via DICOM store

![](_page_14_Picture_7.jpeg)

![](_page_15_Figure_0.jpeg)

![](_page_15_Picture_1.jpeg)

## **Options** for upgrading *dicomPACS®DX-R* X-ray acquisition software

*dicom*PACS<sup>®</sup>*DX-R* may not only be used as a software for the acquisition and processing of X-ray images, but can also be upgraded to a MiniPACS or even to an Enterprise Multi Modality PACS. Over 5,000 installed workstations in more than 35 countries (as of 1 November 2008) prove that our customers are satisfied.

A single workstation system with installed *dicomPACS*<sup>®</sup>*DX-R* software can be upgraded with the following options (extract):

#### Further optional viewer functions:

- May be installed on Windows, Apple MAC and Linux systems
- Generation of full leg/full spine images (Image stitching)
- Preparation of diagnostic reports with integrated images in MS Word
- Connection of of several diagnostic monitors
- Capturing of additional patient and examination data with their freely configurable statistical analysis
- Working with digital prosthesis templates for surgery planning and documentation - Prosthesis templates can be selected from a set and inserted into the image as annotations
- Additional radiological functions such as Maximum Intensity Projection (MIP), Multiplanar Reconstruction (MPR) and hanging protocols
- And much more...

# Options

Upgrade to an integrated multi-modality PACS

- DICOM reception from any DICOM sources, e.g. CT, MRI, scintigraphy, ultrasound etc
- **DICOM distribution** with freely configurable rules
- **DICOM DIR import** for archiving patient CDs by other manufacturers
- **DICOM Query/Retrieve** (SCP/ SCU)
- DICOM Auto **Pre-fetching**
- DICOM Print Server to convert DICOM Basic Print into
  Windows print jobs
- DICOM Compression according to freely configurable rules
- DICOM CD/DVD Backup Module, also via robot systems
- Integration of **film and document scanners**
- Digitalisation of standard and non-standard video signals,
  e.g. endoscopy, angiography etc.
- Fully automatic synchronisation of two image databases,
  e.g. laptop and main archive
- Exchange of images and diagnostic reports between individual clinics by means of teleradiology
- Web Server Intranet: distributes images within a hospital and displays the images in a web browser
- Web Server Internet: enables worldwide image distribution to referring doctors and patients via the internet

![](_page_16_Picture_17.jpeg)

![](_page_16_Picture_19.jpeg)

# Reference

### Veterinary clinic for small animals Dr. Johannes Frahm, Germany

In the "Tierärztliche Klinik für Kleintiere" in Wasbek near Neumünster (Germany) Dr. Johannes Frahm and his team are looking after their patients day and night. The most up-to-date technology is used in all the different sectors of the clinic. These include cardiac ultrasound, monitor surveillance during anaesthesia and odontology, an acknowledged additional qualification of veterinarians.

Since summer 2008, X-ray imaging has been completely direct-digital at the Wasbek veterinary clinic. OR Technology, in cooperation with the firm of "Meva bildgebende Systeme" (Meva imaging systems) installed this X-ray system which was also fitted with a Varian flat panel PaxScan 4030, a 19" touch screen panel PC and the **dicom**PACS<sup>®</sup>**DX-R** image acquisition and processing software. Archiving, diagnostic evaluation and distribution of images within the clinic is now done by the *dicomPACS*<sup>®</sup>vet image processing system for veterinary medicine.

Dr. Johannes Frahm comments on his reasons for change-over as well as the installation and practical application of the new system:

#### ...Reasons for change-over

"We were looking for a new system that would simplify processes in comparison with the previous system of conventional X-ray imaging. An imaging plate cassette system would not have improved the workflow considerably: The cassette has to be inserted and read out and careful

handling is very time-consuming. This brought about the decision to acquire a built-in detector plate to make the image available as fast as possible. Now the image is available within seconds, it can be evaluated immediately and viewed in every treatment room. All the images are automatically archived and can be called up quickly and directly from my "Vetera" patient sytem if they are required again at a later stage. In an archive system with paper envelopes it is often the very thing you are looking for that has gone missing. The more X-ray images you take the more frequent these situations are. Now all this won't happen any more.

The upgrade made it possible to integrate the existing high-value X-ray unit of the firm of Sedecal into the new direct-digital system. Modifications were not necessary since the raster drawer was simply replaced by the built-in detector."

#### ...installation and remote maintenance

"Installation hardly interfered with the running of the practice. If there was an emergency case in between, we could quickly revert to analog X-ray imaging, the staff of the installing firms being most cooperative. Minor initial problems were quickly eliminated by OR Technology via remote maintenance."

#### ...the dicomPACS<sup>®</sup>vet image processing system

"Diagnostic evaluation at the monitor has been solved optimally and archiving

![](_page_17_Picture_13.jpeg)

functions very well. In addition, we integrate photos, ultrasound, endoscopy and dental X-ray images into the PACS. All the images of a patient are available immediately and can be shown to interested owners. This option is often used for explaining the treatment process. C-arm and ultrasound sequences are also suitable for demonstration. This allows owners to understand the nature of the problem and how it was treated."

#### ...the dicomPACS<sup>®</sup>DX-R image acquisition software

"I am very happy with the workflow in image generation. A good image is provided very guickly and transfer to other monitors is wonderfully easy and just requires a single click. The consistent image quality also contributes to making procedures faster and easier. If difficult X-ray images have to be taken, for instance of a bird, the quality of the image can be improved very quickly with a few simple adjustments. The integrated body parts for small animals, with numerous adjustments are most helpful - this type of programmable organ selection leaves nothing to be desired. Moreover, diagnostic image evaluation is designed to be very userfriendly."

You can find **dicom**PACS<sup>®</sup>**vet** X-ray images of small animals on our web server demo: www.dicompacs-web.de [Please request the password under "web server small animals" by mail at info@or-technology.com]

![](_page_17_Picture_18.jpeg)

### OR Technology

IImaging Solutions

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